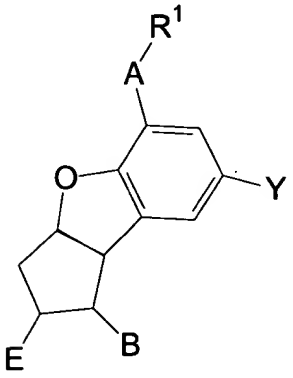
IN THE CLAIMS:

1-16. (Cancelled)

17. (Currently Amended) A method for modulating growth or generation of hair comprising administering a prostaglandin EP4 receptor ligand in an amount effective for modulating growth or generation of hair to human or an animal; wherein the said prostaglandin EP4 receptor ligand is a 5,6,7-trinor-4,8-inter-m-phenylene PGI_2 derivative of the following Formula (I) or a pharmacologically acceptable salt thereof:

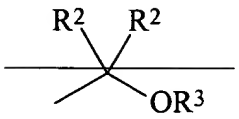


(I)

wherein

R^1 is

(i)



~~wherein R^2 is hydrogen, C_1-C_4 linear alkyl, C_3 or C_4 branched alkyl, trifluoromethyl, -C(=O)-R^4, or -C(=O)-O-R^4, wherein R^4 is C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl or substituted phenyl (wherein the substituent is at least one fluorine, chlorine, bromine, iodine, trifluoromethyl, C_1-C_4 alkyl, nitro, cyano, methoxy, phenyl, phenoxy, p-acetamidebenzamide, -CH=N-NH-C(=O)-NH_2, -NH-C(=O)-Ph, -NH-C(=O)-CH_3 or -NH-C(=O)-NH_2), and the two R^2s may be the same or different; R^3 is hydrogen, C_1-C_4 alkyl, C_1-C_{12} acyl, C_7-C_{16} aroyl, C_7-C_{16} aralkyl, tetrahydropyranyl, tetrahydrofuranyl, 1-ethoxyethyl, allyl, tert-butyl or tert-butyldimethylsilyl,~~

~~(ii)~~ -$COOR^5$

wherein R^5 is

(1) hydrogen or pharmacologically acceptable cation,

(2) C_1-C_{12} linear alkyl or C_3-C_{14} branched alkyl,

~~(3) -Z-R^6~~

~~wherein Z is a valence bond, or linear or branched alkylene represented by the formula C_tH_{2t} wherein t represents an integer of 1 to 6, R^6 is C_3-C_{12} cycloalkyl, or C_3-C_{12} cycloalkyl substituted with 1 to 4 R^7s wherein R^7 is hydrogen or C_1-C_5 alkyl,~~

~~(4) -$(CH_2CH_2O)_nCH_3$~~

~~wherein n represents an integer of 1 to 5,~~

~~(5) -Z-Ar~~

~~wherein Z is defined as the same as the above, Ar is phenyl, α-naphthyl, β naphthyl, 2 pyridyl, 3 pyridyl, 4 pyridyl, α furyl, β furyl, α thienyl, β thienyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above),~~

~~(6) $C_tH_{2t}COOR^8$~~

~~wherein t is defined as the same as the above, R^8 is hydrogen or C_1-C_5 alkyl,~~

~~(7) $C_tH_{2t}N(R^9)_2$~~

~~wherein t is defined as the same as above, R^9 is hydrogen or C_1-C_5 alkyl, and the two R^9s may be the same or different,~~

~~(8) $CH(R^{10})C(=O)R^{11}$~~

~~wherein R^{10} is hydrogen or benzoyl, R^{11} is phenyl, p-bromophenyl, p-chlorophenyl, p-biphenyl, p-nitrophenyl, p-benzamidephenyl or 2-naphthyl,~~

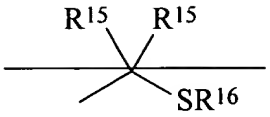
~~(9) $C_pH_{2p}WR^{12}$~~

~~wherein p represents an integer of 1 to 5, W is $-CH=CH-$, $-CH=C(R^{13})-$ or $-C\equiv C-$ wherein R^{13} is C_1-C_{30} linear alkyl, C_3-C_{30} branched alkyl or C_7-C_{30} aralkyl, R^{12} is hydrogen, C_1-C_{30} linear alkyl, C_3-C_{30} branched alkyl or C_7-C_{30} aralkyl, or~~

~~(10) $CH(CH_2OR^{14})_2$~~

~~wherein R^{14} is C_1-C_{30} alkyl or C_1-C_{30} acyl, and the two R^{14}s may be the same or different,~~

~~(iii)~~

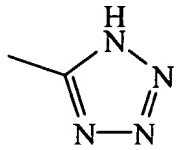


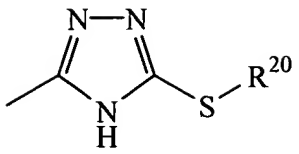
~~wherein R^{15} represents is hydrogen, C_1-C_4 linear alkyl, C_3 or C_4 branched alkyl, trifluoromethyl, -C(=O)-R^{17} or -C(=O)-O-R^{17} wherein R^{17} is C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), and the two R^{15}s may be the same or different; R^{16} is hydrogen, C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), or -C(=O)-R^{18} wherein R^{18} represents C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above),~~

~~(iv)~~ (ii) $-CH_2-R^{19}$

wherein R^{19} is

(1)

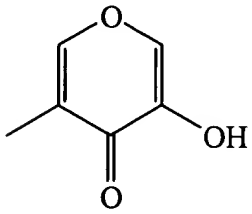




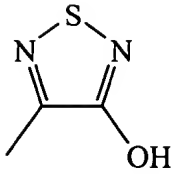
(2)

wherein R^{20} represents hydrogen, C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, phenyl, substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), or -C(=O)-R^{21} wherein R^{21} is C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, or phenyl, ~~or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above),~~

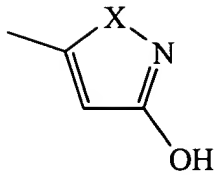
(3)



(4)



(5)



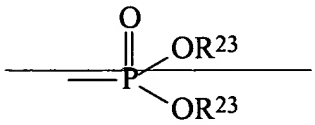
wherein X represents -O- or -S-, or

~~(6) azide,~~

~~(v) $-C(R^{22})_3$~~

~~wherein R^{22} represents hydrogen, fluorine, chlorine, bromine, iodine, cyano or C_1-C_4 alkyl, and all of the R^{22}s may be the same or different,~~

~~(vi)~~



~~wherein R^{23} represents hydrogen, C_1-C_4 alkyl, phenyl, substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), $-CH_2-OR^{24}$ (wherein R^{24} is C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl, or substituted phenyl (wherein~~

~~the substituent is the same as the substituent defined for the substituted phenyl mentioned above), or pharmacologically acceptable cation, and the two R^{23}s may be the same or different,~~

~~(vii) $N(R^{25})_2$~~

~~wherein R^{25} is hydrogen, C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_4-C_{13} cycloalkylalkyl, C_7-C_{12} aralkyl, $-C(=O)-R^{26}$, $-C(=O)-O-R^{26}$, $-SO_2-R^{26}$, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), R^{26} is C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), the two R^{25}s may be the same or different (when one of the R^{25}s is $-SO_2-R^{26}$, the other R^{25} is not $-SO_2-R^{26}$),~~

~~(viii) $-(C(=O)CH_2)_k-H$~~

~~wherein k is an integer of 1 or 2, or~~

~~(ix) $-C(=O)-N(-R^{27})_2$~~

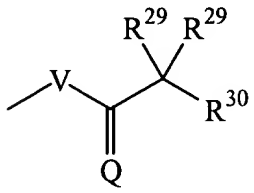
~~wherein R^{27} is hydrogen, C_1-C_{12} alkyl, C_3-C_{12} cycloalkyl, phenyl, substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), C_4-C_{13} cycloalkylalkyl, C_7-C_{12} aralkyl, cyano or $-SO_2-R^{28}$ wherein R^{28} is C_1-C_{12} alkyl, C_3-C_{12} cycloalkyl, phenyl, substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above), C_4-C_{13}~~

~~cycloalkylalkyl, or C_7-C_{12} aralkyl, and the two R^{27}s may be the same or different (when one of the R^{27}s is $-SO_2-R^{28}$, the other R^{27} is not $-SO_2-R^{28}$);~~

Y is hydrogen~~, C_1-C_4 alkyl, fluorine, chlorine, bromine, formyl, methoxy or nitro~~;

B is

(i)



wherein V is

(1) ~~$-CH_2CH_2-$~~,

~~(2) $-C\equiv C-$,~~

~~or~~

~~(3)~~ $-CH=C(R^{31})-$

wherein R^{31} is hydrogen, C_1-C_5 alkyl, fluorine, or chlorine, ~~bromine or iodine,~~

Q is

(1) ~~$=O$~~

~~(2)~~

~~$-R^{32}$~~
~~$-OR^{33}$~~

~~or~~

~~(3)~~

—R^{32}
—R^{32}

wherein R^{32} is hydrogen, C_1-C_4 linear alkyl, C_3 or C_4 branched alkyl, or trifluoromethyl~~, -C(=O)-R^{34}, or -C(=O)-O-R^{34} wherein R^{34} represents C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl, C_3-C_{12} cycloalkyl, C_7-C_{12} aralkyl, phenyl or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl mentioned above)~~; R^{33} is hydrogen, C_1-C_4 alkyl, C_1-C_{12} acyl, or C_7-C_{16} aroyl~~, C_7-C_{16} aralkyl, tetrahydropyranyl, tetrahydrofuranyl, 1-ethoxyethyl, allyl, tert-butyl or tert-butyldimethylsilyl, and the two R^{32}s may be the same or different~~; R^{29} is hydrogen, fluorine, chlorine, bromine, iodine, cyano or C_1-C_4 alkyl, and the two R^{29}s may be the same or different;

R^{30} is

(1) -Z-R^{35}

wherein Z is a valence bond, or linear or branched alkylene represented by the formula C_tH_{2t} wherein t represents an integer of 1 to 6, ~~defined as the same as the above,~~ R^{35} is ~~C_1-C_{12} linear alkyl, C_3-C_{14} branched alkyl,~~ C_3-C_{12} cycloalkyl, ~~C_4-C_{13} cycloalkylalkyl, C_3-C_{12} cycloalkyl substituted with 1 to 4 R^{36}s (wherein R^{36} is hydrogen or C_1-C_5 alkyl), C_4-C_{13} cycloalkylalkyl substituted with 1 to 3 R^{36}s (wherein R^{36} is defined as the same as the above),~~ or phenyl~~, substituted phenyl (wherein the~~

~~substituent is the same as the substituent defined for the substituted phenyl mentioned above), α-naphthyl, β-naphthyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, α-furyl, β-furyl, α-thienyl or β-thienyl,~~

~~(2) —Z-O-R^{35}~~

~~wherein Z and R^{35} are defined as the same as the above,~~

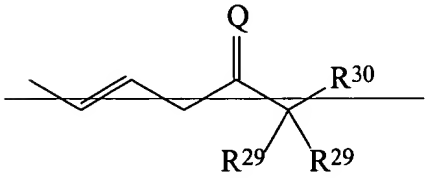
~~(3) —Z-CH=C(R^{35})$_2$~~

~~wherein Z and R^{35} are defined as the same as the above, and the two R^{35}s may be the same or different, or~~

~~(4) —Z-C≡C-R^{35}~~

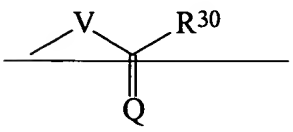
~~wherein Z and R^{35} are defined as the same as the above,~~

~~(ii)~~



~~wherein Q, R^{29} and R^{30} are defined as the same as the above, and the two R^{29}s may be the same or different, or~~

~~(iii)~~

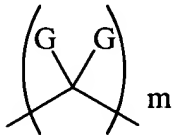


~~wherein V, Q and R^{30} are defined as the same as the above;~~

E represents hydrogen or $-OR^{33}$ wherein R^{33} is defined as the same as the above;

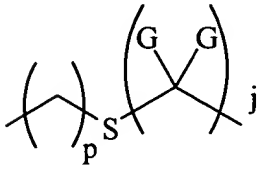
A is

(i)



wherein m represents an integer of 0 to ~~5~~ 2, G represents hydrogen~~, fluorine, chlorine, bromine, iodine, trifluoromethyl, C_1-C_4 linear alkyl or C_3-C_6 branched alkyl, and all Gs may be the same or different,~~

(ii)



wherein j represents ~~an integer of~~ 1 ~~to 4~~, p represents an integer of 0 or 1, G is defined as the same as the above, and all Gs may be the same or different,

(iii) ~~$-CH=CH-CH_2-$,~~

~~(iv) $CH_2-CH=CH-$,~~

~~(v) CH_2-O-CH_2-,~~

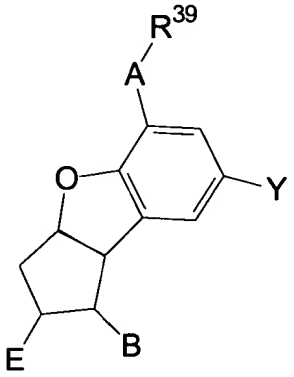
~~(vi)~~ $-O-CH_2-$,

~~(vii)~~(iv) $-C\equiv C-$, or

~~(viii)~~(v) -C=C- (trans).

18-19. (Cancelled)

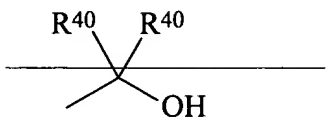
20. (Currently Amended) The method according to claim 17, wherein the said 5,6,7-trinor-4,8-inter-m-phenylene PGI_2 derivative is represented by the following Formula (II) ~~or a pharmacologically acceptable salt thereof~~:



(II)

wherein R^{39} is

(i)

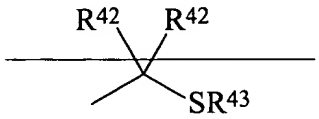


~~wherein R^{40} is hydrogen, C_1-C_4 linear alkyl or trifluoromethyl, the two R^{40} may be the same or different,~~

~~(ii)~~ $-COOR^{41}$

wherein R^{41} is hydrogen, a pharmacologically acceptable cation or C_1-C_{12} linear alkyl,

~~(iii)~~

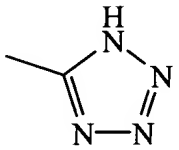


~~wherein R^{42} is hydrogen, C_1-C_4 linear alkyl or trifluoromethyl, the two R^{42}s may be the same or different, R^{43} is hydrogen, C_1-C_4 linear alkyl, phenyl, or $-C(=O)-R^{44}$ wherein R^{44} represents C_1-C_4 linear alkyl,~~

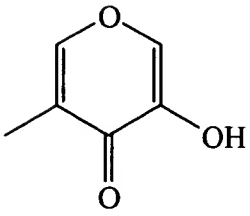
~~(iv)~~ or (ii) $-CH_2-R^{45}$

wherein R^{45} is

(1)

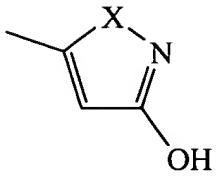


(2)



or

(3)

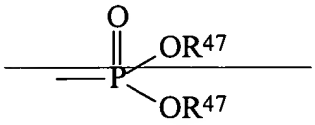


wherein X is defined in claim 17,

~~(v) $C(R^{46})_3$~~

~~wherein R^{46} represents hydrogen, fluorine, cyano or C_1-C_4 alkyl, and all R^{46}s may be the same or different,~~

~~(vi)~~



~~wherein R^{47} represents hydrogen, C_1-C_4 alkyl, or a pharmacologically acceptable cation, and the two R^{47}s may be the same or different, or~~

~~(vii) $N(R^{48})_2$~~

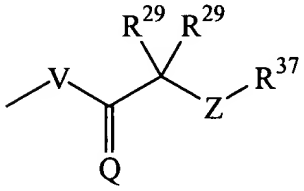
~~wherein R^{48} is hydrogen, $C(=O)R^{49}$ or SO_2R^{49} wherein R^{49} is C_1-C_4 linear alkyl or phenyl, and the two R^{48}s may be the same or~~

~~different (when one of R^{48}s is $-SO_2-R^{49}$, the other R^{48} is not $-SO_2-R^{49}$),~~

Y is hydrogen, ~~fluorine, chlorine or bromine,~~

B is

(i)



wherein V is

(1) ~~$-CH_2CH_2-$,~~

~~(2) $-C\equiv C-$,~~

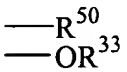
~~or~~

~~(3)~~ -CH=CH-,

Q is

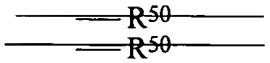
~~(1) =O,~~

~~(2)~~



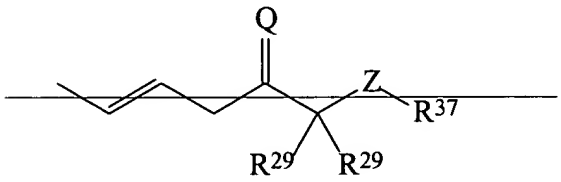
~~or~~

~~(3)~~



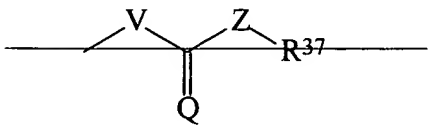
wherein R^{50} is hydrogen, C_1-C_4 linear alkyl, ~~C_3 or C_4 branched alkyl,~~ or trifluoromethyl, R^{33} is defined in claim 17, ~~the two R^{50}s may be the same or different,~~ R^{29} is defined in claim 17, and the two R^{29}s may be the same or different, Z is defined in claim 17, and R^{37} is defined in claim 17, ~~C_3-C_{12} cycloalkyl, C_4-C_{13} cycloalkylalkyl, C_3-C_{12} cycloalkyl substituted with 1 to 4 R^{38}s (wherein R^{38} is hydrogen or C_1-C_5 alkyl), C_4-C_{13} cycloalkylalkyl substituted with 1 to 3 R^{38}s (wherein R^{38} is defined as the same as the above), phenyl, substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl in claim 17), α naphthyl, β naphthyl, 2-pyridyl, 3 pyridyl, 4 pyridyl, α furyl, β furyl, α thienyl or β-thienyl,~~

~~(ii)~~



~~wherein Q, R^{29}, Z and R^{37} are defined as the same as the above, and the two R^{29}s may be the same or different, or~~

~~(iii)~~

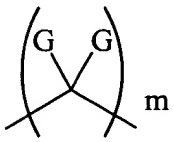


~~wherein V, Q, Z and R^{37} are defined as the same as the above,~~

E ~~represents the following in the definition of~~ is defined in claim 17,

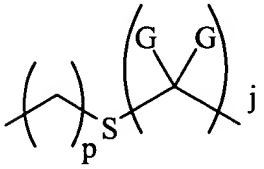
A is

(i)



wherein m represents an integer of 0 to 2 ~~3~~, G is hydrogen, ~~fluorine, chlorine, bromine, iodine, trifluoromethyl or C_1-C_4 linear alkyl, and all Gs may be the same or different,~~

(ii)



wherein j represents ~~an integer of~~ 1 ~~or 2~~, p represents 1 ~~the following in the definition of claim 17~~, G is defined as the same as the above, ~~and all Gs may be the same or different,~~

(iii) ~~$-CH=CH-CH_2-$,~~

~~(iv) $-CH_2-CH=CH-$,~~

~~(v) $-CH_2-O-CH_2-$,~~

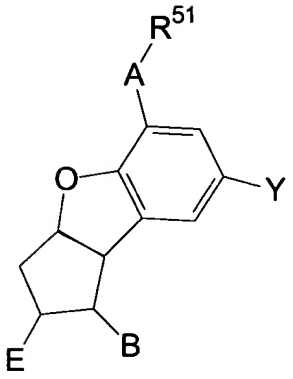
~~(vi)~~ $-O-CH_2-$,

~~(vii) $-C\equiv C-$~~

or

~~(viii)~~ (iv) -C=C- (trans).

21. (Amended) The method according to claim 17, wherein the said 5,6,7-trinor-4,8-inter-m-phenylene PGI_2 derivative is represented by the following Formula (III) ~~or a pharmacologically acceptable salt thereof~~:



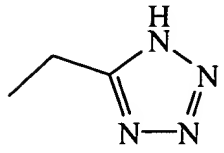
(III)

wherein R^{51} is

(i) $-COOR^{52}$

wherein R^{52} is hydrogen, a pharmacologically acceptable cation or methyl, or

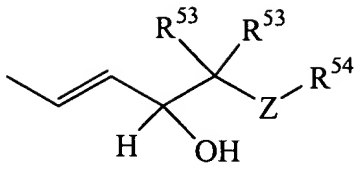
(ii)



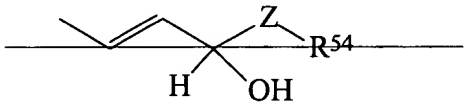
wherein Y is hydrogen or fluorine,

B is

(i)



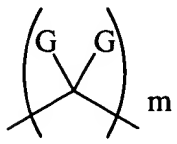
wherein R^{53} is hydrogen, fluorine or C_1-C_4 alkyl, the two R^{53}s may be the same or different, Z represents the following in the definition of claim 17, R^{54} is C_5-C_7 cycloalkyl, or phenyl, ~~or substituted phenyl (wherein the substituent is the same as the substituent defined for the substituted phenyl in claim 17), or (ii)~~



wherein Z and R^{54} are defined as the same as the above,

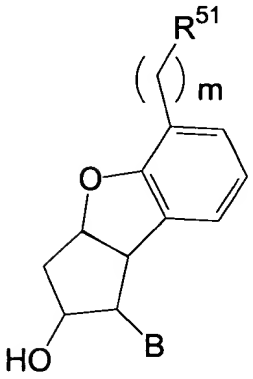
E is hydrogen or -OH,

A is



wherein m represents an integer of 0 to 2, and G represents hydrogen ~~or fluorine, and all Gs may be the same or different~~.

22. (Currently Amended) The method according to claim 17, wherein the said 5,6,7-trinor-4,8-inter-m-phenylene PGI_2 derivative is represented by the following Formula (IV) ~~or a pharmacologically acceptable salt thereof~~:



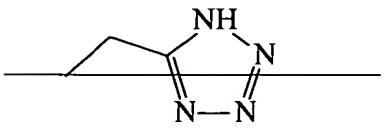
(IV)

wherein R^{51} is defined in claim 17,

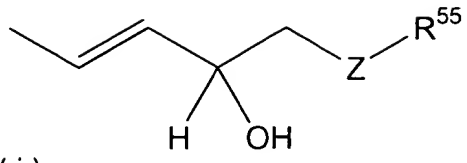
~~(i) $-COOR^{52}$~~

~~wherein R^{52} is hydrogen, a pharmacologically acceptable cation or methyl, or~~

~~(ii)~~

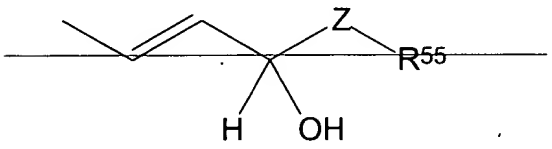


B is



(i)

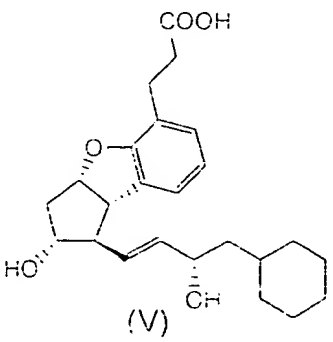
wherein Z represents ~~the following in the definition of~~ is defined in claim 17, R^{55} is C_5-C_7 cycloalkyl or phenyl, or



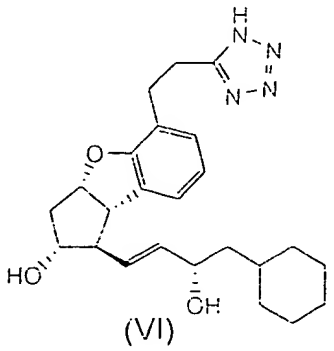
(ii)

wherein Z and R^{55} are defined as the same as the above, m represents an integer of 0 to 2.

23. (Currently Amended) The method according to claim 17, wherein ~~the~~ said 5,6,7-trinor-4,8-inter-m-phenylene PGI_2 derivative is represented by the following Formula (V) or (VI):



(V)



(VI)

24. (Currently Amended) The method according to any one of claims 17 and ~~19~~ 20 to 23, wherein the said method for modulating growth or generation of hair is a method for promoting growth or generation of hair.